

That the movement of water from the absorbing root hairs to the vascular elements is through the walls and not through the cells, and is swift, Professor Hauman concludes from experiment. He shows that, under conditions of sub-imbibition, acid fuchsin pigment, taken in by the wounded surface of radicles cut off from young seedlings, will quickly reach the walls of the root hairs.—G. J. P. Stanford University, January, 1935.

A Manual of Southern California Botany. By PHILIP A. MUNZ. Pp. xxxix + 642, with 310 figures. Published by Claremont Colleges, April 5, 1935. \$5.00.

This book is a welcome addition to the published accounts of the flora of California. It fills a need for a treatise of the plants of a section of the state heretofore only incompletely covered. It is a handbook convenient in size, adequately illustrated, well bound, and containing 642 pages. Southern California as defined by the author "includes Los Angeles, San Diego, Orange, Riverside, San Bernardino and Ventura Counties as well as portions of Santa Barbara, Kern and Inyo Counties." Imperial County was probably inadvertently omitted from the list.

In addition to the formal taxonomic treatment of genera and species, there is much interesting and suggestive introductory material on the physical features of Southern California and the endemic aspects of the flora. It is regrettable that the size and scope of the book did not permit of further elaboration of the conclusions and theoretical aspects to be derived from this remarkable fund of new material pertaining to these subjects. Following the taxonomic treatment is a list of nomenclatorial changes and Latin diagnoses of new species and varieties. A list of persons for whom Southern California plants have been named with a brief biographical statement of each is included, as well as a section, contributed by Frank W. Peirson of Pasadena, dealing with the meanings of the scientific names of the species listed in the manual.

The book is the result of several years of capable research. The genera and species are well described. An ultra-conservative point of view is taken toward most controversial taxonomic problems. For example, in Polemoniaceae the genera *Gilia*, *Lan-gloisia*, *Loeselia*, *Linanthus*, *Navarretia*, *Leptodactylon*, and *Hugelia* are lumped together in *Gilia*, necessitating two and one-half pages of key to fifty-nine species.

Certain mechanical defects present themselves. Owing to irregularity in the size of the matrix used, the printed matter sometimes comes perilously close to the lower edge of the paper (page 123) while on other pages the margin is noticeably wide (page 6). The illustrations for the most part are well done. It is unfortunate that the author did not place an explanatory caption with the drawings. More careful proof reading would have eliminated many typographical errors.—H. L. M.

University of California, May, 1935.